

AF 2800

Docket No.: SON-1718  
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:  
Yasukiyasu Sugano, et al.

Application No.: 09/478,812

Group Art Unit: 2815

Filed: January 7, 2000

Examiner: E. Lee

For: PROCESS FOR PRODUCING THIN FILM  
SEMICONDUCTOR DEVICE AND LASER  
IRRADIATION APPARATUS

#22  
6-21-03  
Payton

APPELLANT'S REPLY BRIEF

MS Appeal Brief - Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

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Dear Sir:

This is a Reply Brief under 37 C.F.R. §1.192 responding to the Examiner's Answer dated April 10, 2003 (Paper No. 21).

Appellants reiterate that each of independent claims 11 to 12, and 17 to 18 recites that a thin film semiconductor is formed by irradiating an amorphous semiconductor substrate with an energy beam that has an adjusted cross sectional shape so that a region of the substrate is irradiated with a single shot, so that a resultant polycrystalline silicon substrate is uniform in its crystallinity. Throughout the present specification (i.e., page 51, lines 7 to 12) it is repeatedly taught that by irradiating the entirety of the unit size of the thin film semiconductor device that the crystallization of the silicon film is made continuous, avoiding the formation of borders in the crystallized silicon. The specification also teaches that such borders are the product of conventional crystallization processes that involve the piecemeal irradiation of several adjacent regions of the unit size of the semiconductor device. The borders in the conventional process are the result of slight overlapping of regions that are separately irradiated. Consequently, the single

shot irradiation process of the present invention does ascribe a structural limitation to the resultant thin film semiconductor that sets the structure apart from thin film semiconductors that are formed by irradiation of several adjacent regions in a unit area.

It is clear from the Examiner's Answer that the examiner does not dispute the patentability of the method disclosed by the Appellants, rather, the examiner appears to be relying on an overly strict interpretation vis-à-vis "product-by-process." That is, the examiner is taking the parochial viewpoint that "product-by-process" claims will only be interpreted according to the final product regardless of how it is obtained. Contrary to basic examination procedures and guidelines, the examiner ignores the tenet of interpreting the claim as a whole.

Appellants in their Brief have presented discussion and arguments that the process limitation contained in the claims should be given patentable weight as they ascribe a structural feature to the resulting semiconductor chip, thereby distinguishing the semiconductors from those in the prior art.

It is understood that product-by-process claims are limited to the structure implied by the steps. As stated in the MPEP,

The structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art, especially where the product can only be defined by the process steps by which the product is made, or where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product. See, e.g., *In re Garnero*, 412 F.2d 276,279, 162 USPQ 221,223 (CCPA 1979)(holding "inter-bonded by interfusion" to limit structure of the claimed composite and noting that terms such as "welded," "intermixed," "ground in place," "press fit - ted," and "etched" are capable of construction as structural limitations.)(emphasis added)

See MPEP at §2113 (Rev. 1, Feb. 2003).

Appellants also note that the Examiner's Answer does not rebut Appellants assertion that Miyasaka et al. '779 discloses the very type of conventional process discussed in the background section of the present application, or Appellant's assertions that Miyasaka's

process would result in the very border regions that the present invention overcomes by use of the single shot radiation.

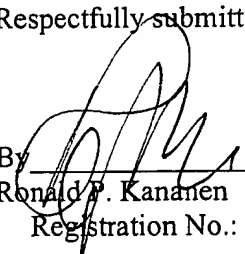
All other arguments presented in the Appeal Brief remain as stated.

Conclusion

In view of the foregoing reasons, Appellant submits that the final rejection of claims 11 to 12, 17 to 18, 27 to 28, 39 to 40, 53 to 54, 63, 65, and 73 to 74 is improper and should not be sustained. Therefore, a reversal of the Final Rejection of October 16, 2002, as to claims 11 to 12, 17 to 18, 27 to 28, 39 to 40, 53 to 54, 63, 65, and 73 to 74, is respectfully requested.

Dated: June 6, 2003

Respectfully submitted,

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